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# Building for a Green Future

*Environmental Report 1999/2000*

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The page features a large background image of a modern living room with a family sitting on a sofa, looking out at a green landscape under a bright sky. The text is overlaid on the left side of the image.

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 **CHAIRMAN'S MESSAGE**

*As the housing provider for half the population of Hong Kong, the Housing Authority is very conscious of its responsibilities towards the environment. We may not have done enough in the past. However, in this upcoming year and in the future, we are committed to exert more effort. We aim to build and manage homes in the most environmentally responsible manner, in order to sustain the continuing development of Hong Kong. We will put into place an Environmental Management System. Together with our customers and partners, we will focus on what we can do to reduce waste. Through our Quality Housing initiatives, we are developing a Green Estate to demonstrate the ideas that will be used in the future. The Authority will provide its full support to the Department in achieving these objectives.*



**Chairman Rosanna Wong Yick-ming**

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## **D**IRECTOR'S FOREWORD

*As this is the first Environmental Report of the Housing Authority, we have taken the opportunity to include in it a survey of our initiatives and achievements in previous years, as well as our programmes and activities for 1999/2000. In addition, we have highlighted areas where we are seeking to make further improvements and set our goals and targets for this year.*

*I trust you will find the contents of this Report informative. It has been reviewed independently by an environmental consultant, ERM CVS. Nevertheless, we would welcome your suggestions both on the format of the report and on how we can further improve our environmental performance.*



*Director of Housing* **Tony Miller**

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## **HONG KONG HOUSING AUTHORITY ENVIRONMENTAL POLICY STATEMENT**

*The Housing Authority is committed to continually improving the environmental standards in the provision of public housing and related services. In achieving this objective, the Housing Authority has adopted the following environmental principles:*

- To promote healthy living and a green environment.
- To develop a strategic framework and implement environmental management for the promotion of sustainable development.
- To strictly comply with and fully implement all relevant environmental legislation and regulations.
- To address environmental concerns and incorporate environmental initiatives in planning and design, construction and demolition, marketing, and estate management activities.
- To minimise environmental impacts (air, dust, noise, waste, and water) to residents and public from the Housing Authority's operations.
- To develop procurement policies to minimise the use of resources and achieve cost effectiveness.
- To promote environmental awareness and participation among staff, residents and contractors through education and publicity programmes.
- To review and seek continual improvement on the implementation of an environmental management system.

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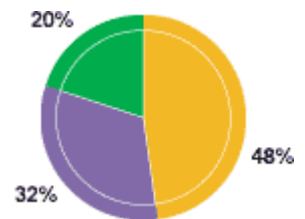
## OVERVIEW OF THE HONG KONG HOUSING AUTHORITY AND ITS SERVICES



The Hong Kong Housing Authority (The Authority) was established as a statutory body with financial autonomy in 1973. We are responsible for implementing most of Hong Kong's public housing programme. As at March 31, 2000, 598,800 families - 32% of Hong Kong's population - lived in public rental housing managed by the Authority. A further 309,800 families lived in their own homes, which they bought through the Authority's various subsidised home ownership schemes, including the Tenants Purchase Scheme (TPS).

### HOUSING MODE OF THE HONG KONG POPULATION

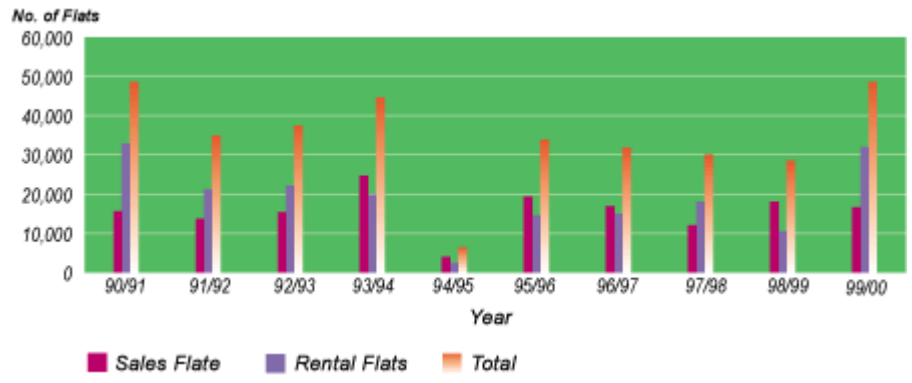
- The Authority's Public Rental Housing
- The Authority's Home Ownership Schemes
- Others



As of the same date, the Authority manages 173 rental estates, 18 of which are being offered for sale under the TPS, plus 128 Home Ownership Scheme (HOS) Courts and 8 Temporary Housing Areas. In addition, we manage over 3.6 million square metres of commercial and non-domestic premises.

The Authority's policies are implemented by the Housing Department (the Department), and its staff of approximately 14,200. The Department is divided into four main business branches - Development & Construction, Allocation & Marketing, Management and Commercial & Business Development; and two supporting cross-services branches - Finance and Corporate Services.

### HOUSING PRODUCTION BETWEEN 1990/1991 AND 1999/2000



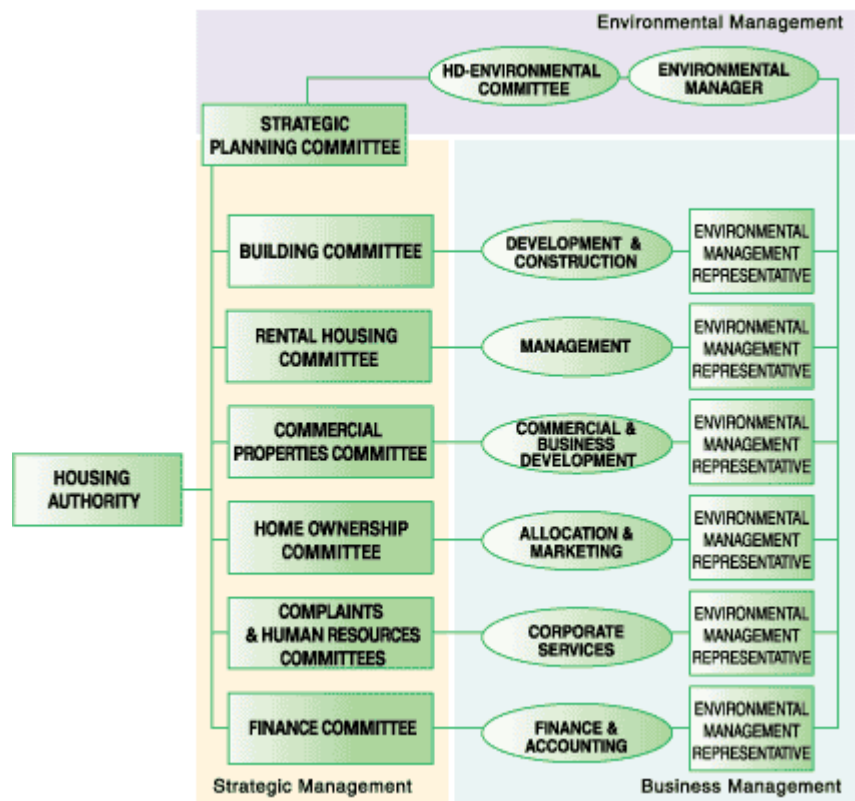
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## ENVIRONMENTAL MANAGEMENT STRATEGIES

A Housing Department Steering Committee was set up in August 1998 to formulate a central directive on the Authority's commitment to environmental protection and conservation. This Steering Committee - entitled the HD-Environmental Committee - is spearheading the development of the strategic environmental management system (EMS) framework and its implementation.

### ORGANISATIONAL FRAMEWORK OF THE ENVIRONMENTAL MANAGEMENT SYSTEM



Developed in consistency with ISO 14001 international standards, the proposed EMS has three key management components:

- At the strategic planning level, policies for environmental performance are set by members of the Authority and its Committees, led by the Strategic Planning Committee.
- In Business Branches, Business Plans have been established to translate policies into environmental objectives so that EMS can be operated and the performance of individual Business Branches can be assessed.

- In the management of environmental initiatives, the HD-Environmental Committee has been set up to monitor and coordinate the progress of implementing environmental initiatives within the Department.

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## **E**NVIRONMENTAL PERFORMANCE TO DATE



### PLANNING AND DESIGN

#### Energy Efficiency of Buildings:

Energy-saving lamps have been widely used in housing estates for over 15 years, and about 60 new car parks have installed energy-efficient floodlights since 1995.

Automatic timer control systems have been adopted as standard lighting design practice for new projects. These systems have created significant energy savings of at least \$2,500,000 for domestic blocks completed in 1999.



Since 1995, all new commercial building projects have been designed to comply with the Overall Thermal Transfer Value (OTTV) stipulated under the Building (Energy Efficiency) Regulation.

Lighting installation for New Harmony Blocks, designed to comply with the Lighting Energy Code requirements, was successfully registered under the HK Energy Efficiency Registration Scheme for Buildings in November 1999.



**Water Conservation and Quality:**

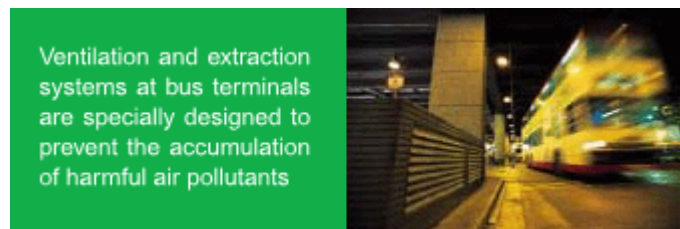
We have included a smaller cistern of 7.5 litre in capacity in our specifications. The smaller cistern is as efficient as the traditional 9 litre ones. If the smaller cisterns are adopted in all new projects, consumption of flushing water can be reduced by more than 16%.

In 1994, the Authority introduced uPVC lined pipes for water supplies in all new projects. The new water pipes significantly improved the problem of water discoloration due to rusting of the galvanised iron pipes.

**Air Quality:**

Since 1996, nearly 400 new domestic blocks have been designed to have generators installed on their rooftops instead of on ground floors, so that emissions are dispersed away from residential areas.

A design guideline for new projects was prepared in 1997 providing detailed criteria for the design of ventilation and extraction systems to prevent the accumulation of harmful air pollutants. About 30 car parks are using the new design.



Since 1985, only non-ozone-depleting chemicals should be used in fire extinguishing systems in all new projects. Similarly, we started using non-ozone-depleting refrigerants in all chillers in 1992. Since 1996, we have also completely phased out the use of CFC manufactured thermal insulation for all air conditioning installations.

**Minimising Noise Nuisance:**

Since the early 1990s, noise control measures including provision of sufficient buffer distances and adjustments to the layout of blocks as a result of identified traffic noise problems have been adopted. Where these types of measures are not possible, we locate noise-screening features such as car parks and

commercial buildings between noise sources and residential blocks.

Since 1996, we have also adopted the single aspect building design, with non-noise sensitive facades, such as kitchens, bathrooms and access corridors, facing sources of traffic or other types of noise to minimise noise impact.



### **Waste Management:**

The Automated Refuse Collection System (ARCS) was approved by the Authority in September 1998 as a standard feature for all domestic blocks to be completed after January 1, 2001, wherever practical and economically viable. The System allows refuse to be collected in a totally concealed manner. Rubbish on each floor is transported by suction through ducting to a central point, where it is compacted and removed by collection trucks.



## **CONSTRUCTION AND DEMOLITION**

### **Waste Reduction in Construction:**

In 1999, our contract specifications were amended to require demolition and civil engineering contractors to separate inert (e.g. concrete, bricks and rubbles) and non-inert (e.g. timber) materials on-site. The objective is to divert inert materials away from landfill sites and to use them in reclamation at public filling areas and in site formation work.

Since January 1997, rubble from demolition contracts may be processed for re-use as hard-core and back-filling material. In addition, a trip-ticket system has been adopted to monitor transportation of construction and demolition materials to public filling areas/landfills for the prevention of illegal dumping by contractors.

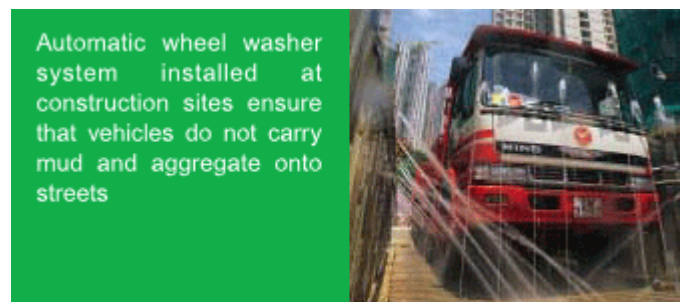
Since 1990, all structural concrete for foundation works on Authority projects has incorporated PFA as partial cement replacement. To-date, the foundation works for over 200 Authority's construction contracts have used PFA added concrete.

#### **Minimising Construction Nuisance:**

Any violations of the Noise Control Ordinance, Air Pollution Control Ordinance and other relevant environmental regulations will be recorded and reported to the Authority for consideration of disciplinary action.

#### **Water Recycling:**

To conserve water usage, water-recycling systems have been installed in a number of construction sites to treat water with minor silt and soil contamination. Treated water can be reused on-site.



#### **Conserving Resources:**

The estimated amount of timber saved by various measures adopted by the Authority between 1985 and 1999 are summarised in the following table:

Practice	Contract / Block Types	Estimated Timber Saved (tonnes)
■ Use of metal hoarding instead of hardwood	All contracts	21,000
■ Use of large panel metal formwork	Standard Blocks, Small Household Developments, and Vertical Interim Housing	783,000
■ Use of pre-cast facade fabricated using metal formwork	Harmony Blocks, Concord Blocks and New Cruciform Blocks	50,000
■ Use of pre-cast staircase fabricated using metal formwork	Harmony Blocks, Concord Blocks, New Cruciform Blocks and Vertical Interim Housing	5,000
■ Semi-pre-cast slab construction, aluminium formwork and steel table formwork	Harmony Blocks, Concord Blocks, and New Cruciform Blocks	70,000
<b>Total:</b>		<b>929,000</b>



Reusable large panel metal formwork is used for most construction projects to reduce the use of wooden formwork

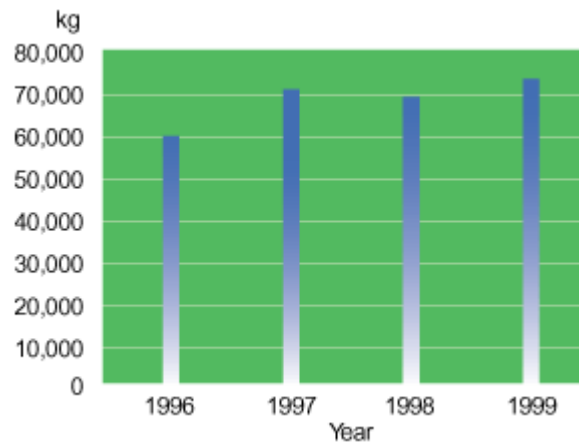
## MARKETING, FLAT ALLOCATION & OFFICE ADMINISTRATION

### Waste Minimisation in Offices:

The initiatives include double-sided printing, minimising photocopies, reusing envelopes and using more e-mail. Staff members are also encouraged to put waste paper into green boxes for recycling.



### WASTE PAPER COLLECTED IN THE AUTHORITY'S HEADQUARTERS BUILDING



### ESTATE MANAGEMENT AND MAINTENANCE

#### Waste Management and Reduction in Housing Estates:

Started in 1991, the waste paper recovering programme was extended to all of the Authority's rental estates in September 1999.

The Waste Reduction Task Force established in June 1997, has set the target to reduce 40% municipal solid waste in ten years. For domestic waste in public housing estates, the target is 20% in 10 years.

To-date, about 4,300 recyclable materials collection bins for separate collection of waste paper, aluminium cans and plastic bottles have been provided in rental estates managed by the Authority. A total of 22,539 tonnes of recyclable waste were collected in 1999.



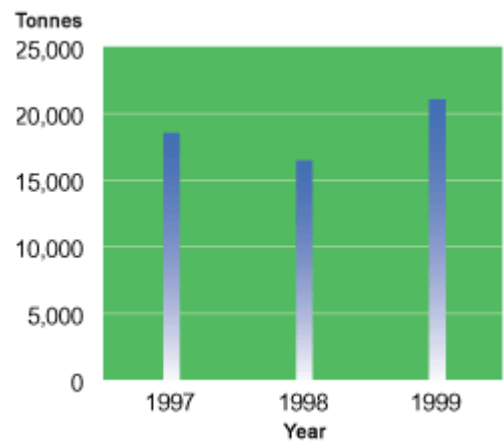


Cleansing contractors are required to collect and sort household waste for recycling daily; to send recyclable materials to waste recyclers twice a week; and to submit a quarterly report on the collection of recyclable materials to the Authority.

**A TOTAL OF 22,539 TONNES OF RECYCLABLE WASTE WERE COLLECTED FROM THE AUTHORITY'S HOUSING ESTATES IN 1999**



**WASTE PAPER COLLECTED IN THE AUTHORITY'S HOUSING ESTATES**



Various promotional campaigns to promote awareness among tenants and the public about the benefits of waste reduction were organised during 1999. These included the Green Living Campaign, the Recycling Credit Scheme and Waste Recycling Campaign.

**Energy Conservation:**

The Energy Management Co-ordination Committee regularly monitors electricity usage to avoid unnecessary consumption. Converting electricity accounts from general service tariffs to bulk tariffs to minimise electricity charges is also being closely monitored.

Over the years, a number of retrofitting programmes have been carried out to reduce the use of electricity. Replacing lamps with more energy-efficient lighting is an example.

#### **Water Conservation and Quality:**

In view of the leakage problem in many older estates, more than 120 km of underground water pipes were inspected between 1996 and 1998.

Further work on installing isolation valves and check meters to minimise water wastage is being implemented.

#### **Air Quality:**

All fire extinguishers using ozone-depleting chemicals have been replaced.

Among the 25 chillers using ozone-depleting refrigerants, 23 of them have been retrofitted with environmentally friendly chemicals. The two remaining chillers will be upgraded within the next two years.

In 1996, the Authority also completely phased out the use of CFC manufactured thermal insulation in air-conditioning installations.

At the end of 1999, more than 82% of the older developments containing asbestos had been abated.

So far, 64 asbestos surveys for schools in public housing estates have been conducted. Phase 2 of the survey programme will continue until October 2000 and will consist of a further 65 surveys. The remaining 131 schools will be surveyed before the end of 2001.

Two consultancy studies performed in collaboration with EPD



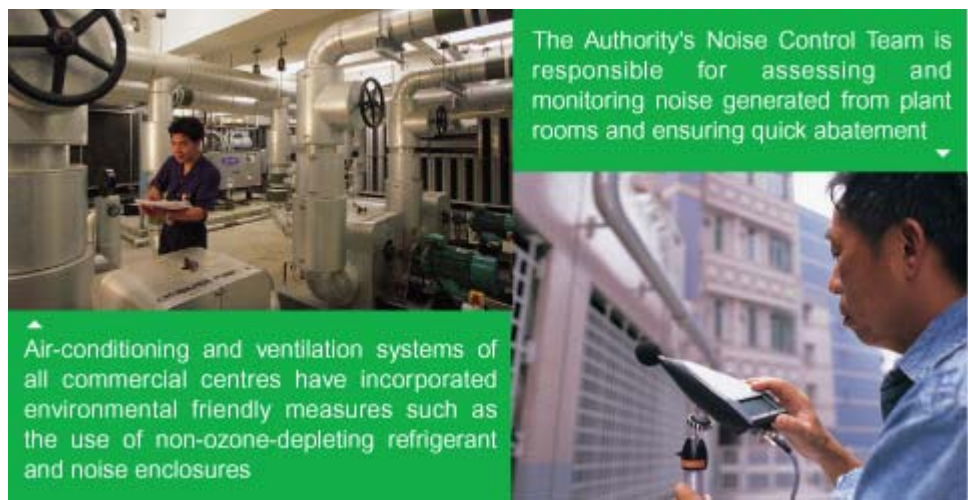
measuring indoor radon levels in 48 public housing estates were carried out in 1994 and 1998 respectively. Both studies confirmed that low levels of radon were present in some estates, but concluded that the levels measured did not constitute a health hazard to residents.

**Noise Management:**

Since the establishment of the Noise Control Team in 1990, more than 200 noise mitigation cases have been resolved.

The following highlights some other noise reduction initiatives implemented by the Authority in the past few years:

Noise reduction initiatives	Performance
<ul style="list-style-type: none"> <li>• Noise mitigation measures to enclose air conditioning systems in commercial centres</li> </ul>	<ul style="list-style-type: none"> <li>• Desirable indoor noise level achieved and statutory requirements complied with</li> </ul>
<ul style="list-style-type: none"> <li>• Relocation of emergency generators to roofs of buildings</li> </ul>	<ul style="list-style-type: none"> <li>• Noise disturbance to pedestrians and residents at lower floors avoided</li> </ul>
<ul style="list-style-type: none"> <li>• Replacement of existing high-speed noisy water pumps with low noise alternatives</li> </ul>	<ul style="list-style-type: none"> <li>• About 500 water pumps have been replaced</li> </ul>
<ul style="list-style-type: none"> <li>• Provision of acoustic enclosure for air conditioning and ventilation systems</li> </ul>	<ul style="list-style-type: none"> <li>• For all existing commercial centres since 1989</li> </ul>



**WASTEWI\$E SCHEME**

The Authority joined the Wastewi\$e Scheme organised by EPD in early 2000.

### **COMPLIANCE WITH ENVIRONMENTAL LAWS**

A total of 96 cases of non-compliance with environmental legislation and regulations (such as violations of the noise permits in construction sites) have been reported to the Authority so far.

To enable us to continuously assess our environmental performance, an Environmental Information System will be established so that environmental compliance data will be reported to the Authority through the system on a regular basis by construction and estate management contractors. This information will include data such as the number of violations of construction noise permits and wastewater discharge licences, as well as violations of air emission standards and other regulatory requirements.

A more systematic and comprehensive database will also be established covering the amount of waste produced, recovered, recycled and reduced, as well as energy and water consumption data about our housing estates. An electronic system will be used to record the issues identified and to track the implementation of corrective and preventive actions.

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## **R** AISING ENVIRONMENTAL AWARENESS AMONG STAFF AND THE COMMUNITY



A wide range of training programmes, promotional activities of various types, and seminars on environmental legislation, management and implementation strategies, as well as general environmental protection issues, have been organised in the past year. These included Staff Green Days, Estate Green Days, dissemination of green messages through the staff newsletter *House Talk* and Estate Management Advisory Committee (EMAC) newsletters. An educational video promoting green housekeeping practices was also produced for distribution to all the authority's offices in May 1999.

In 1999, 11 seminars and training sessions under the Environmental Awareness Training Plan were held, and about 1,000 officers received training. The Department is currently developing further courses and tools to enhance staff awareness of environmental issues, to build a dynamic and environmentally conscious workforce within the Authority. Courses are also being arranged for environmental management system training and specific training for different groups in the Authority. Furthermore, tenants' groups and various Green Groups have been invited to participate in, or to jointly organise promotional campaigns. The three-year Green Environment Campaign commencing in June 1999 has promoted green practices, such as waste segregation and reduction among public housing tenants and the Authority's staff.





We will focus our environmental initiatives in the following areas in 2000/2001:

**I. DEVELOP THE ENVIRONMENTAL MANAGEMENT SYSTEM BY:**

- Devising long-term action plans;
- Rolling out environmental training programmes;
- Developing a comprehensive Environmental Information System;
- Undertaking selected environmental audits;
- Developing an environmental emergency plan.



**II. FOSTER COMMUNITY AWARENESS BY:**

- Consulting tenants to solicit suggestions in the improvement of environmental conservation and protection;

- Launching waste reduction initiatives including visits and competitions;
- Introducing healthy living initiatives including production of TV / radio segments and community news programmes;
- Organising Green Our Estate competitions and visits.

### III. OBTAIN COMMITMENT FROM STAKEHOLDERS THROUGH PARTNERING.

#### WE WILL:

- Complete a comprehensive review of our procurement practices;
- Conduct partnering workshops;
- Review our specifications for construction contracts;
- Conduct research on waste reduction measures and ways of reducing noise during construction.



### IV. REDUCE WASTE IN THE FOLLOWING AREAS:

#### Construction Waste

- Continue to minimise demolition, construction and renovation waste;
- Investigate opportunities for further waste reduction;
- Reduce the generation of fitting out waste in HOS programmes by offering a high standard or a basic shell fitting-out for prospective owners' choice.

#### Waste from Estates

- Review building designs and enlarge refuse rooms to facilitate waste segregation;

- Examine methods of refuse collection from flats;
- Explore the feasibility of extending the scope of collection of recyclable materials;
- Weigh waste and recyclable materials to provide accurate data for monitoring the effectiveness of the waste reduction programme;
- Undertake waste reduction campaigns.

#### Waste from HA Offices

- Replace photocopying machines with double sided copiers;
- Encourage the use of e-mail;
- Launch publicity programmes;
- Encourage staff to use both sides of paper/double-sided copying, reuse envelopes and use more recycled paper.

#### V. GREEN ESTATE

- Develop a "Green Estate" to test concepts on reducing noise, energy use and waste;
- Develop an environmentally innovative "Concept Flat";
- Act as a model for future developments.





## G OALS AND TARGETS FOR 2000/2001

To further demonstrate our commitment to conserving the environment and responding to the call in the Chief Executive's 1999 Policy Address to make Hong Kong an ideal home, the Authority plans to undertake the following actions in 2000/2001. In addition, Key Performance Indicators for measuring and monitoring our progress have been assigned in order to evaluate our performance against these actions.



### Key Environmental Targets and Goals for 2000/2001

Please choose...		
Initiatives	Performance Target	Time Target
<b>Implementation of EMS:</b>		
<ul style="list-style-type: none"> <li>Appoint an Environmental Manager</li> </ul>	<ul style="list-style-type: none"> <li>Institute overall coordination of environmental initiatives and EMS implementation</li> </ul>	April 2000
<ul style="list-style-type: none"> <li>Provide EMS awareness training and other specialist training</li> </ul>	<ul style="list-style-type: none"> <li>Develop an environmental training action plan in support of the EMS</li> </ul>	April 2000 (start)
<ul style="list-style-type: none"> <li>Develop an Environmental Emergency Plan</li> </ul>	-	November 2000
<ul style="list-style-type: none"> <li>Develop an Environmental Information System (EIS)</li> </ul>	-	January 2001
<ul style="list-style-type: none"> <li></li> </ul>		

Develop a corporate EMS Manual	-	March 2001
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- Conduct regular audits on EMS
  - Conduct environmental audit every 6 months
- September 2001

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ERM CVS, the certification and verification subsidiary of the Environmental Resources Management Group, has been tasked to investigate and check the accuracy of key information and data regarding the Authority's environmental management strategies, programme implementation and performance. Following are the key points of its verification statement:

"In our opinion, information presented in the Authority's first Environmental Report for 1999/2000 is consistent with the materials and data reviewed."

"The statements made regarding environmental performance are fair and accurate."

"During the verification process, we have noticed that many stakeholders see the Housing Authority as the leader in the housing sector in Hong Kong. We encourage the Authority to continue to set a good example in environmental excellence and continue its contributions to the community through its commitment to its Environmental Policy."

**For additional information, please contact:**

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Copies of the full-version report can be obtained from the above address.

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